Pull Exerciser

Background of the Invention

1. Field of the Invention

The present invention relates to a pull exerciser having a replaceable resilient cord.

2. Description of the Related Art

Fig. 6 of the drawings illustrates a conventional pull exerciser including two attachment members 20 each having a hole 201, a resilient cord 1 having two ends respectively extending through the holes 201 of the attachment members 20, with an end piece 11 being attached to each end of the resilient cord 1, and two handles 2 respectively mounted to the attachment members 20. Each end piece 11 has a diameter greater than that of the hole 201 of the respective attachment member 20 to prevent the resilient cord 1 from disengaging from the respective attachment member 20. A user may grasp the handles 2 and pull the resilient cord 1 with both hands to exercise muscles of the arms and the chest. A disadvantage of this conventional pull exerciser is that the resilient cord 1 could not be replaced with other resilient cord having a different elastic coefficient. Once the resilient cord 1 loses its resiliency, the whole pull exerciser has to be discarded.

U.S. Patent Application No. 10/347,814 discloses an adjustable pull exerciser including two attachment members, two handles respectively mounted on the attachment members, and a plurality of resilient cords attached between the attachment members. The respective resilient cord can be replaced with a new one when desired. However, the manufacturing cost is high, as there are many elements involved.

Summary of the Invention

In accordance with one aspect of the present invention, a pull exerciser includes a handle, a resilient cord including an end piece attached to an end thereof, the end piece having a diameter greater than that of the resilient cord, and a positioning plate including opposed first side and second side. The positioning plate includes a plurality of holes extending from the first side of the positioning plate through the second side of the positioning plate. Each hole includes a diameter greater than that of the end piece of the resilient cord, allowing passage of the end piece of the resilient cord from the first side of the positioning plate to the second side of the positioning plate.

The positioning plate further includes a plurality of retaining slots each having a cord-receiving portion and a guiding portion. The respective cord-receiving portion has a diameter smaller than that of the end piece of the resilient cord. The respective guiding portion includes a first end communicated with the outside and a second end communicated with the respective cord-receiving hole. The respective guiding portion includes a reduced section having a diameter smaller than that of the resilient cord.

The resilient cord extends through the handle and the respective hole, and the resilient cord is removably, forcibly inserted into the respective cord-receiving hole through the respective guiding portion.

In accordance with a second aspect of the invention, a puller exerciser includes two handle, a resilient cord including two ends, an end piece being attached to each end of the resilient cord, the respective end piece having a diameter greater than that of the resilient cord, and two positioning plates each including opposed first side and second side. Each positioning plate includes a plurality of holes extending from the first side of the positioning plate through the

second side of the respective positioning plate. Each hole has a diameter greater than that of the respective end piece of the resilient cord, allowing passage of the respective end piece of the resilient cord from the first side of the respective positioning plate to the second side of the respective positioning plate.

The respective positioning plate further includes a plurality of retaining slots each having a cord-receiving portion and a guiding portion. The respective cord-receiving portion has a diameter smaller than that of the respective end piece of the resilient cord. The respective guiding portion includes a first end communicated with the outside and a second end communicated with the respective cord-receiving hole. The respective guiding portion includes a reduced section having a diameter smaller than that of the resilient cord.

The resilient cord extending through each handle and each hole, and the resilient cord is removably, forcibly inserted into the respective cord-receiving hole through the respective guiding portion.

In accordance with a third aspect of the invention, a pull exerciser includes a handle, a resilient cord including an end piece attached to an end thereof, the end piece having a diameter greater than that of the resilient cord, and a positioning plate including opposed first side and second side. The positioning plate includes in sequence a first hole, a first retaining slot, a second hole, a second retaining slot, a third retaining slot, and a third hole.

Each of the first hole, the second hole, and the third hole extends from the first side of the positioning plate through the second side of the positioning plate. Each of the first hole, the second hole, and the third hole has a diameter greater than that of the end piece of the resilient cord, allowing passage of the end piece of the resilient cord from the first side of the positioning plate to the second side of the positioning plate.

Each of the first retaining slot, the second retaining slot, and the third retaining slot includes a cord-receiving portion and a guiding portion. The respective cord-receiving portion has a diameter smaller than that of the end piece of the resilient cord. The respective guiding portion includes a first end communicated with the outside and a second end communicated with the respective cord-receiving hole. The respective guiding portion includes a reduced section having a diameter smaller than that of the resilient cord.

The resilient cord extends through the handle and each of the first hole, the second hole, and the third hole, and the resilient cord is removably, forcibly inserted into the cord-receiving hole through the guiding portion of each of the first retaining slot, the second retaining slot, and the third retaining slot.

The resilient cord of the pull exerciser can be replaced by a new one once the resilient cord loses its resiliency. Further, the resilient cord of the pull exerciser can be replaced by another resilient cord having different resiliency. Further, attachment members required in the prior art pull exercisers are omitted in the pull exerciser in accordance with the present invention.

Other objects, advantages, and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

Brief Description of the Drawings

Fig. 1 is a perspective view of a pull exerciser in accordance with the present invention.

Fig. 2 is a perspective view of a positioning plate of the pull exerciser in accordance with the present invention.

Fig. 3 is a perspective view similar to Fig. 1, wherein an end of a resilient cord of the pull exerciser is extending into a retaining slot of the positioning plate in Fig. 2.

Fig. 4 is a perspective view illustrating a modified embodiment of the pull exerciser in accordance with the present invention.

Fig. 5 is a schematic view illustrating use of the pull exerciser in Fig. 4.

Fig. 6 is a perspective view of a conventional pull exerciser.

Detailed Description of the Preferred Embodiments

Referring to Fig. 1, a pull exerciser in accordance with the present invention generally is designated by 1 and comprises a handle 21, a positioning plate 3, and a resilient cord 2. Referring to Fig. 2, the positioning plate 3 includes opposed first and second sides. The positioning plate 3 further includes a plurality of holes and a plurality of retaining slots. In this embodiment, the positioning plate 3 includes in sequence a first hole 31, a first retaining slot 34, a second hole 33, a second retaining slot 36, a third retaining slot 35, and a third hole 32. The first, second, and third holes 31, 33, and 32 extend from the first side of the positioning plate 3 through the second side of the positioning plate 3. The first, second, and third holes 31, 33, and 32 do not allow insertion of the resilient cord 2 from the outside, while each of the first, second, and third retaining slot 34, 36, and 35 is communicated with the outside, allowing the resilient cord 2 to be forcibly inserted into the respective retaining slots 34, 36, and 35.

As illustrated in Fig. 2, the respective retaining slot 34, 36, and 25 includes a cord-receiving portion 30 and a guiding portion 38 having a first end communicated with the outside and a second end 37 communicated with the cord-receiving portion 30. The respective guiding portion 38 tapers from the first end thereof toward the second end 37 thereof, with the second end 37 of the

respective guiding portion 38 having a width smaller than a diameter of the respective cord-receiving portion 30. Namely, the second end 37 is a reduced section in the respective guiding portion 38.

The resilient cord 2 has a diameter smaller than that of the holes 31, 32, and 33 and greater than a width of the second end 37 of the respective guiding portion 38. When inserting the resilient cord 2 into the respective retaining slot 34, 36, 35, the resilient cord 2 is forcibly passed through the guiding portion 38 into the respective cord-receiving portion 30. The positioning plate 3 further includes a flange 39 on an end edge thereof to provide improved strength.

In this embodiment, an end piece 22 is attached to an end of the resilient cord 2, and an engaging member 24 (e.g., a loop, a hook, or any other suitable member) is attached to the other end of the resilient cord 2. The engaging member 24 can be engaged with, e.g., a hook (not shown) fixed on a wall (not shown) or the like, allowing the user to proceed with pull exercise. The respective hole 31, 32, 33 has a diameter greater than that of the end piece 22, allowing passage of the resilient cord 2 from the first side of the positioning plate 3 to the second side of the positioning plate 3.

Referring to Fig. 3, in assembly, the end of the resilient cord 2 is extended through the second hole 33, the first retaining slot 34 (by means of forcibly inserting the resilient cord 2 through the respective guiding portion 38 into the respective cord-receiving portion 30), the first hole 31, a longitudinal hole (not labeled) of the handle 21, the third hole 32, the third retaining slot 35 (by means of forcibly inserting the resilient cord 2 through the respective guiding portion 38 into the respective cord-receiving portion 30), and the second retaining slot 36 (by means of forcibly inserting the resilient cord 2 through the respective guiding portion 38 into the respective cord-receiving portion 30), with the end piece 22 on

the end of the resilient cord 2 being located adjacent to the second retaining slot 36. The end piece 22 has a diameter greater than that of the cord-receiving portion 30 of the second retaining slot 36, preventing the end of the resilient cord 2 from passing through the cord-receiving portion 30 of the second retaining slot 36. Thus, the resilient cord 2 is reliably retained in place. Preferably, the center of the second hole 33 is coincident with the center of the positioning plate 3. This allows uniform pulling.

Fig. 4 illustrates a modified embodiment of the invention, wherein the pull exerciser includes two handles 21, two positioning plates 3, and a resilient cord 2. The respective positioning plate 3 has a structure identical to that in the first embodiment. The respective handle 21 has a structure the same as that in the first embodiment. The resilient cord 2 has two ends each having an end piece 22 securely attached thereto. The positioning plates 3 are placed in a manner that the holes 31-33 and the retaining slots 34-36 on one of the positioning plates 3 are diagonally symmetric to those of the other positioning plate 3 with respect to a central axis passing through the centers of the positioning plates 3.

In assembly, an end of the resilient cord 2 is extended through one of the positioning plates 3 and one of the handles 21 in a manner identical to that in the first embodiment. The other end of the resilient cord 2 is extended through the other positioning plate 3 and the other handle 21 in a manner substantially the same as that for the end of the resilient cord 2, but in a diagonally symmetric way. Fig. 5 illustrates use of the pull exerciser in Fig. 4. Preferably, the center of the second hole 33 of the respective positioning plate 3 is coincident with the center of the respective positioning plate 3. This allows uniform pulling.

The respective end piece 22 of the resilient cord 2 can be replaced by tying the respective end of the resilient cord 2 to form a bulged end. The number of the holes 31-36 can be varied according to need.

Detachment of the resilient cord 2 can be easily achieved by means of a reverse operation. Thus, the resilient cord of the pull exerciser can be replaced by a new one once the resilient cord loses its resiliency. Further, the resilient cord of the pull exerciser can be replaced by another resilient cord having different resiliency. Further, attachment members required in the prior art pull exercisers are omitted in the pull exerciser in accordance with the present invention.

Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the invention as hereinafter claimed.